

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

REC'D 19 APR 2001  
 WIPO PCT

(PCT Article 36 and Rule 70)

14

Applicant's or agent's file reference <b>P10911/MÅ:BSN</b>	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/SE99/02311</b>	International filing date ( <i>day/month/year</i> ) <b>10.12.1999</b>	Priority date ( <i>day/month/year</i> ) <b>22.12.1998</b>	
International Patent Classification (IPC) or national classification and IPC7 <b>B25G 1/10, E04F 21/16 // A46B 5/02, A46B 17/02</b>			
Applicant <b>ANZA AB et al</b>			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand <b>12.07.2000</b>	Date of completion of this report <b>06.04.2001</b>
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer <b>Ola Engstrand/MP</b> Telephone No. 08-782 25 00

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE99/02311

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

 the international application as originally filed the description:

pages \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

 the claims:

pages \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, as amended (together with any statement) under article 19

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

 the drawings:

pages \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

 the sequence listing part of the description:

pages \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.  
These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is: the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

 contained in the international application in written form. filed together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readable form. The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4.  The amendments have resulted in the cancellation of: the description, pages \_\_\_\_\_ the claims, Nos. \_\_\_\_\_ the drawings, sheet/fig \_\_\_\_\_5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	<u>1-12</u>	YES
	Claims	<u>          </u>	NO
Inventive step (IS)	Claims	<u>12</u>	YES
	Claims	<u>1-11</u>	NO
Industrial applicability (IA)	Claims	<u>1-12</u>	YES
	Claims	<u>          </u>	NO

**2. Citations and explanations (Rule 70.7)**

The claimed invention relates to a tool handle. The invention is intended to improve the ergonomics and the handle may be held in a more stable manner whilst simultaneously allowing a more comfortable, natural angle of the wrist. The solution according to the invention is to provide a handle with a hole for the thumb.

In the international Search Report, US 1 980 087 is cited. The document describes a tool handle for tools having substantially flat shanks (page 2, column 1, line 14-23; figure 1). The handle is provided with a finger hole (page 2, column 1, line 39-51). Also the thumb must be regarded as one of the fingers.

The subject matter of claim 1 differs from the disclosure of US 1 980 087 A in that the hole is specified for the thumb. This is also the principal argument in the applicant's letter of 02-01-2001, for stating out that the invention involves an inventive step. It is, however, considered to be obvious to a person skilled in the art to realise that the hole could be used for the thumb. Consequently, claim 1 does not involve an inventive step.

Other documents cited in the search report are considered to be less relevant than the above-mentioned document.

The dependent claims 2-11 define features that the ordinary worker would select.

.../...

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

International application No.

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**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V.

Therefore, the invention according to claims 1-11 is not considered to involve an inventive step.

However, the above cited document does not reveal the invention defined in claim 12. The handle seems to be particularly adapted to be connected to a broad spatula or trowel. The subject matter of the invention defined in claim 12 is therefore considered to be novel, to involve an inventive step and to be industrially applicable.

## PENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION  
(PCT Rule 61.2)

To:

Assistant Commissioner for Patents  
 United States Patent and Trademark  
 Office  
 Box PCT  
 Washington, D.C.20231  
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 13 September 2000 (13.09.00)	
International application No. PCT/SE99/02311	Applicant's or agent's file reference P10911/MÅ:EE
International filing date (day/month/year) 10 December 1999 (10.12.99)	Priority date (day/month/year) 22 December 1998 (22.12.98)
<b>Applicant</b> CARLSSON, Stefan et al	

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

12 July 2000 (12.07.00)

in a notice effecting later election filed with the International Bureau on:

\_\_\_\_\_

2. The election  was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	Authorized officer  Charlotte ENGER  Telephone No.: (41-22) 338.83.38
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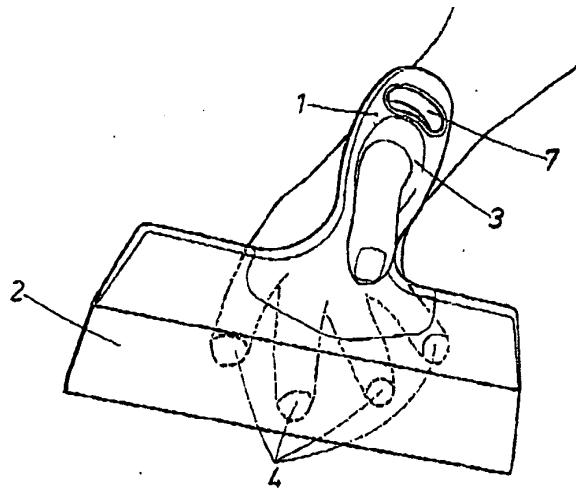
PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7: <b>B25G 1/10, E04F 21/16 // A46B 5/02, 17/02</b>		A1	(11) International Publication Number: <b>WO 00/37221</b>
(21) International Application Number: <b>PCT/SE99/02311</b>		(43) International Publication Date: <b>29 June 2000 (29.06.00)</b>	
(22) International Filing Date: <b>10 December 1999 (10.12.99)</b>		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BE, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
(30) Priority Data: <b>9804480-3 22 December 1998 (22.12.98) SE</b>		Published With international search report.	
(71) Applicant (for all designated States except US): ANZA AB [SE/SE]; PO Box 133, S-564 23 Bankeryd (SE).			
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(74) Agents: AKERMAN, Marien et al.; Albihns Patentbyrå Malmö AB, P.O. Box 4289, S-203 14 Malmö (SE).			

(54) Title: TOOL HANDLE



## (57) Abstract

The invention relates to a tool handle and more precisely to an improved handle (1) having a gripping hole (3) for the thumb. The tool has a working portion (2) connected to the handle (1). Preferably, the gripping hole (3) is located such that the other fingers (4) of the hand will apply pressure to the tool relatively close to the working portion. The handle may also have a removable plug intended for fitting into the gripping hole (3) so as to give the handle a conventional, solid embodiment. The handle is suitable for tools such as trowels and similar, and allows an improved grip of the tool during work.

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JC18 Rec'd PCT/PTO 19 JUN 2001

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## TOOL HANDLE

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## FIELD OF THE INVENTION

The present invention relates to a tool handle and more precisely to an improved handle having a gripping hole for the thumb. The handle is suitable for tools like trowels and similar, and allows a better grip of the tool during work.

## STATE OF THE ART

Conventional handles for various tools are known since a long time. The known handles have no holes for the fingers of the hand, but are enclosed by the hand. Sometimes the index finger, and possibly the middle finger, is extended forwards for applying pressure onto the tool further forward, towards the working portion of the tool. The extended fingers are used more for controlling and applying pressure to the tool than for holding it fixed in the hand. This is not ideal for all tools.

There are also "handles" consisting of only a hole for the thumb, e.g. on a palette. A palette is however not used like a tool in the conventional sense, but should rather be compared to a tray.

The present invention provides an improved handle compared to the previously known art. By providing a gripping hole for the thumb in the handle, the ergonomics is improved and the handle may be held in a more stable manner whilst simultaneously allowing a more comfortable, natural angle of the wrist.

## SUMMARY OF THE INVENTION

The present invention thus provides a tool handle. The tool has a working portion connected to the handle.

According to the invention, the handle is provided with a gripping hole for the thumb. Preferably, the gripping hole is located in such a way that the other fingers of the hand will apply pressure on the tool relatively close to the working portion.

The handle may also be provided with a removable plug, intended for placing in the gripping hole so as to give the handle a conventional, solid embodiment.

The invention and preferred embodiments thereof are defined in the appended claims.

## BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be described in detail below, with reference to the enclosed drawings, wherein:

Fig. 1 is a perspective view of a trowel according to the present invention, being held by a hand,

Fig. 2 is a perspective view of a trowel provided with a plug according to the pre-

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sent invention,

Fig. 3 is a perspective view from one direction of a plug according to one embodiment of the invention,

Fig. 4 is a perspective view of the plug of Fig. 3, from the other direction,

Fig. 5 is a perspective view from one direction of a plug according to another embodiment of the invention, and

Fig. 6 is a perspective view of the plug of Fig. 5, from the other direction.

#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The invention thus relates to an ergonomically improved tool handle. The tool is illustrated here as a broad spatula or trowel, but the handle can also be used with other tools like grinding tools, brushes and the like.

As can be seen in Fig. 1, the exterior contour of the trowel resembles that of a conventional trowel having a handle 1 and a working portion 2 consisting of a metal sheet and the handle mounting. As is also previously known, the handle is not located at right angles to the working portion, but is here somewhat angled.

The novelty of the invention is, that the handle is arranged on the one hand for allowing it to be held enclosed by the hand, and on the other for allowing it to be held with the thumb only, by being provided with a gripping hole 3, intended for the thumb. The thumb of the hand is inserted through the hole in such a manner that the first joint of the thumb is pressing towards the handle, and the inside of the thumb is pressing against the forward, inner portion of the gripping hole 3. The rearward, inner portion of the gripping hole 3 simultaneously contacts the outside of the hand and the thumb. The other fingers are pressing with their tips onto the other side of the tool (the rear side in the figure). The pressure areas of the other fingers are marked by dashed ovals 4. As can be seen, the gripping hole 3 is oblong, allowing space for the thumb to be directed substantially forward along the handle, at a relatively small angle thereto. The entire hand is held rather extended, with all the fingers, including the thumb, only slightly bent. Also the wrist has a straight basic position, but will of course bend back and forth as necessary during work.

It may be seen that the tool, thanks to the gripping hole 3, will be very comfortable to hold. The pressure points will be distributed over the tool in an advantageous manner. It is easy to spread out and pull together the pressure areas 4 by spreading and drawing together the fingers, respectively, somewhat. The pressure areas 4 will always be distributed over a large portion of the width of the working portion 2 and all the fingers are utilised, making it easy to apply a strong pressure e.g. during filling and other types of work where sweeping motions are used. Thanks to the gripping hole 3, no fingers are needed for gripping around the handle, as was

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the case with the known art. The new handle makes better use of the construction of the human hand, with the thumb directed towards the other fingers.

Preferably, the gripping hole 3 has rounded inner edges against the thumb in order to feel comfortable. A suitable size of the hole might be about 3 x 4 cm, the 5 hole thus being larger in the longitudinal direction of the handle. The gripping hole 3 should be located at an adapted distance from the working portion, such that the other fingers will apply pressure rather close to the working portion. Thereby, an optimum pressure and control of the tool is obtained.

For certain types of work, holding the tool like a conventional handle may 10 however be more comfortable. In a preferred embodiment of the invention, the gripping hole 3 can thus be filled out by a plug 5. Fig. 2 shows a trowel having a plug 5 inserted. The plug 5 fills out the handle, making the pressure area inside the hand larger.

Figs. 3 and 4 show a first embodiment of the plug. As shown, the plug may be 15 split. The plug consists of two halves 11 being connected to each other by means of a coupling. The coupling comprises a pin 9, affixed to or being part of one half, and extending into a through hole 10 in the other half. The plug is fitted by placing the halves, one from each direction, into the gripping hole 3, and inserting the pin 9 into the hole 10. The plug is held together by the friction between the pin and the hole. 20 The plug has a cup-shaped peripheral edge 8 in order to smoothly follow the inner edge of the gripping hole 3. To remove the plug, one pushes on the pin 9 with a pointed object through the hole 10, making the halves 11 begin to part. Then the halves are easily pulled away from each other. Other types of couplings, e.g. Velcro straps, are conceivable. The above plug does not have to be elastic, but may be 25 manufactured from a harder material, such as plastic.

Figs. 5 and 6 illustrate a second embodiment of the plug. The plug 5 is made in one piece and preferably made of rubber or some other elastic material. The plug also has a cup-shaped peripheral edge 6 in order to smoothly follow the inner edge of the gripping hole 3. The plug 5 is easy to fit by hand and can be removed with 30 some pointed object, e.g. a screwdriver.

As is shown in the figures, the handle also has a suspension hole 7, as is conventional. The suspension hole 7 constitutes no part of the present invention and can also be omitted.

It will be understood that the handle according to the invention can also be 35 used with other tools, such as brushes, paintbrushes, grinding tools etc. The angle of the handle relative to the working portion may of course also be varied depending on the use of the tool. The protective scope of the invention is solely limited by the following claims.

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CLAIMS

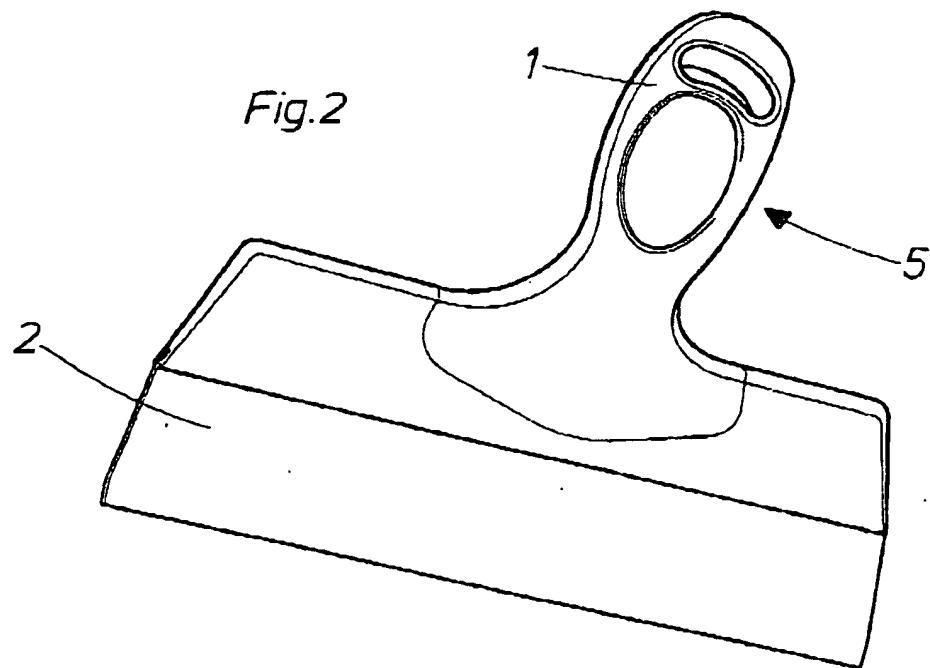
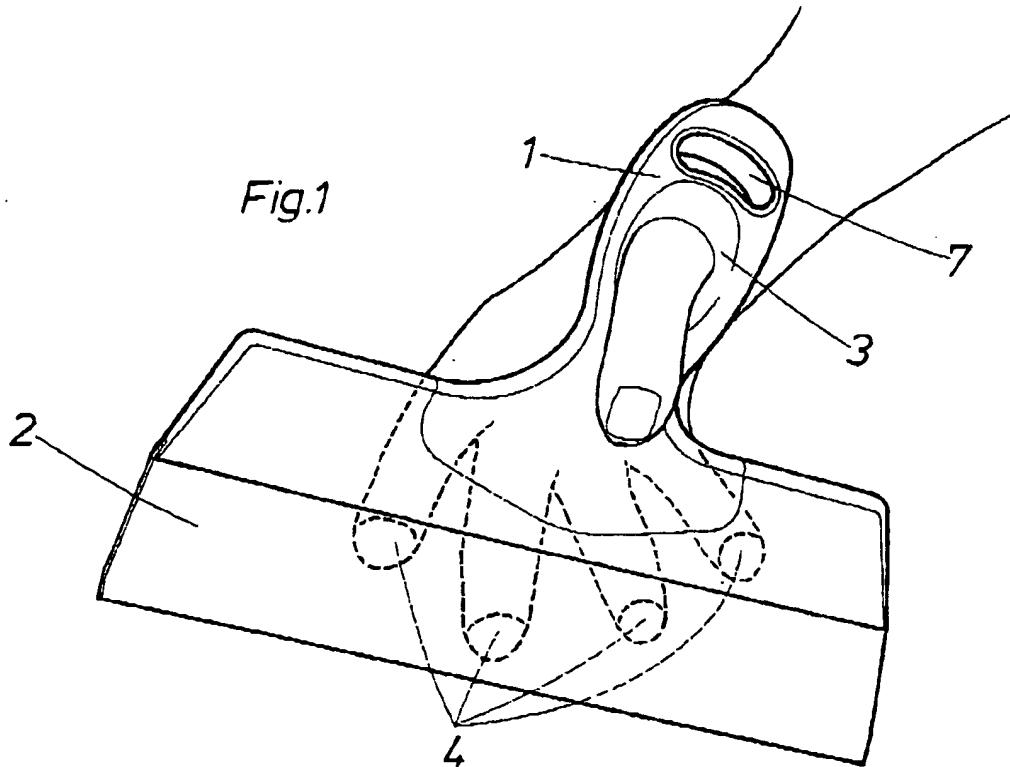
1. A tool handle (1) with a working portion (2) connected to the handle, characterised in that the handle is arranged to be held enclosed by the hand, as well as to be held with the thumb only, by being provided with a gripping hole (3), intended for the thumb, which is then inserted through the gripping hole (3).
2. The handle according to claim 1, characterised in that the first joint of the thumb is pressing towards the handle in the opposite direction compared to the other fingers (4).
- 10 3. The handle according to claim 2, characterised in that the gripping hole (3) is located such that the other fingers (4) of the hand will apply pressure onto the tool relatively close to the working portion (2).
4. A handle according to claim 1, 2 or 3, characterised in that the gripping hole (3) is oblong and has rounded internal edges.
- 15 5. The handle according to claim 4, characterised in that the gripping hole (3) is about 3 x 4 cm.
6. A handle according to any one of the preceding claims, characterised by a removable plug (5; 11) intended for fitting into the gripping hole (3).
- 20 7. A handle according to claims 6 and 4, characterised in that said plug (5; 11) has an inwardly cup-shaped edge (6; 8) that smoothly follows the gripping hole (3).
8. A handle according to claims 6 or 7, characterised in that said plug (5) is made of rubber.
- 25 9. A handle according to claims 6 or 7, characterised in that said plug comprises two parts (11) being inserted one from each side of the gripping hole (3) and held together by a releasable coupling (9, 10).
10. The handle according to claim 9, characterised in that said plug (5) is substantially made of plastic.
- 30 11. A handle according to any one of the preceding claims, characterised in that the handle (1) is arranged at an oblique angle to the working portion (2).
12. A handle according to any one of the preceding claims, characterised in that the tool is a broad spatula or trowel.

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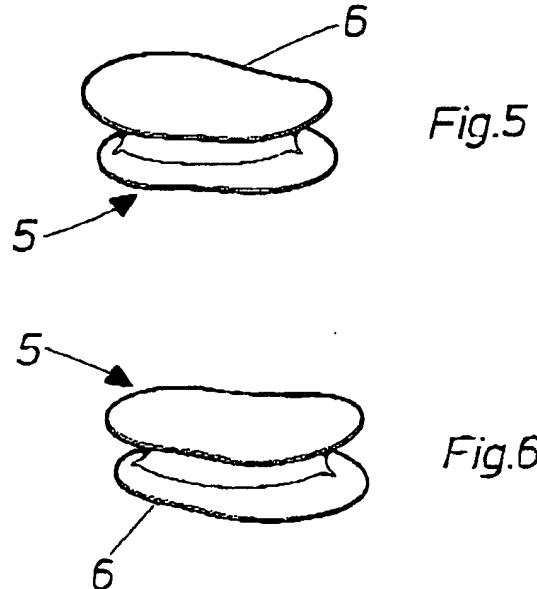
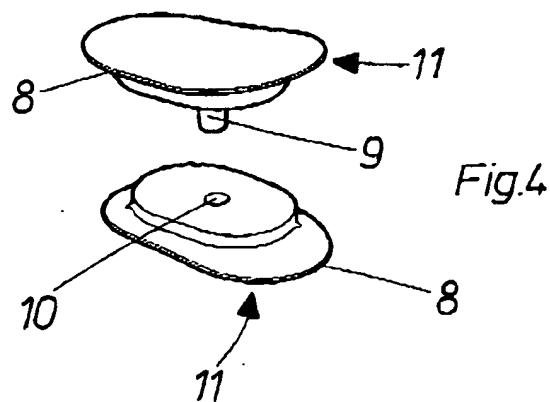
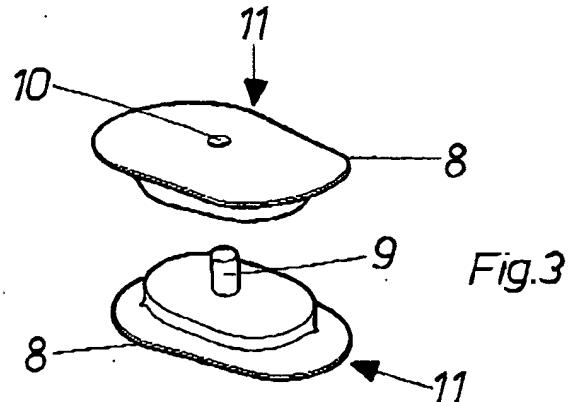


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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/SE 99/02311

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B25G 1/10, E04F 21/16 // A46B 5/02, A46B 17/02  
According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B25G, E04F, A46B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PAJ, WPI, EPDOC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 1980087 A (JULIUS H. RAST), 6 November 1934 (06.11.34), page 2, column 1, line 14 - line 23; page 2, column 1, line 39 - line 51 --	1-5, 11-12
A	US 2914785 A (CHIPMAN P. ELA), 1 December 1959 (01.12.59) --	1-5
A	EP 0855230 A1 (SUK-7 V.O.F.), 29 July 1998 (29.07.98) --	1-5

Further documents are listed in the continuation of Box C.

See patent family annex.

## \* Special categories of cited documents

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed
- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- \*&\* document member of the same patent family

Date of the actual completion of the international search

27 March 2000

Date of mailing of the international search report

11-04-2000

Name and mailing address of the ISA/  
Swedish Patent Office  
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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/02311

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 8144498 A (YAYOI KAGAKU KOGYO KK) 1996-06-04 (abstract) World Patents Index (online). London, U.K.: Derwent Publications, Ltd. (retrieved on 2000-03-27). Retrieved from: EPO WPI Database. DW199632, Accession No. 1996-319781 & JP 8144498 A (YAYOI KAGAKU KOGYO KK) 1996-10-31 (abstract)(online) (retrieved on 2000-03-27). Retrieved from: EPO PAJ Database. & JPB-144498. -- -----	11-12

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.

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02/12/99

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 1980087 A	06/11/34	NONE	
US 2914785 A	01/12/59	NONE	
EP 0855230 A1	29/07/98	NL 1004937 C	00/00/00